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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,959	12/29/2000	Ludwig Hofmann	GR 98 P 1974 P	8500

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EXAMINER	
IQBAL, KHAWAR	

ART UNIT	PAPER NUMBER
2686	9

DATE MAILED: 12/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/751,959	HOFMANN, LUDWIG	
	Examiner	Art Unit	
	Khawar Iqbal	2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1,3-7,9,10 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1,4,7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Papadakis et al (5461921) and further in view of Muzilla et al (5938611).

3. Regarding claims 1 and 4 Papadakis et al teaches a method for transmitting data between a head part and a base part of a hands-free telephone, which comprises (abstract, fig. 6):

digitizing information to be transmitted (figs. 1,6, element 26) (col. 9, lines 24-27);

spreading the digitized information over a wider frequency band using a CDMA technique (col.9, lines 24-27);

performing a digital to analog (304) conversion on the spread digitized information (col. 9, lines 27-30);

converting the digital to analog converted (304) spread information into an ultrasound signal (col. 9, lines 31-35); and

transmitting the ultrasound signal via an air interface (26) (col. 9, lines 31-35).

Papadakis et al teaches a continuous wave of wideband direct-sequence spread-

spectrum signals continuously drives one or more transducers (26), transmitting coded ultrasonic signals into the object under test (25). The interrogating signal comprises a carrier, phase-modulated with a pseudo-random code of length sufficient to produce continuous spectral components. One or more receiving transducers (30) of the signals (1,2,3,4), diffracted and deflected within the test object, provide electrical output signals. These are cross-correlated, e.g. software-driven, with a time-delayed replica of the transmitted signal, producing a unique signature signal for display and analysis to determine the test object properties, including flaws. Papadakis et al does not specifically teach compressing information to be transmitted using compressing coding.

In an analogous art, Muzilla et al teaches compressing information to be transmitted using compressing coding (col. 3, lines 5-40). Muzilla et al teaches Improves the SNR and/or resolution in color flow ultrasound imaging by using coded excitation with single code. Allows a long transmit pulse to be compressed on receive such that most energy is concentrated in a short interval. Improves spatial resolution sensitivity without compromising sensitivity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Papadakis et al by specifically adding feature compressing coding in order to enhance system performance of the system purpose of increasing coding efficiency as taught by Muzilla et al.

Regarding claim 7 Papadakis et al teaches a hands-free telephone comprising an ultrasonic transmission system including (abstract, figs. 1,6):

a CDMA spreader for spreading digital information to a number of carrier frequencies using a CDMA technique (col. 9, 24-45);

a digital to analog converter for digital to analog converting the spread information (col. 9, 24-35); and

an ultrasonic transducer for converting the digital to analog converted spread information into an ultrasound signal and for transmitting the ultrasound signal over an air interface (col. 9, 24-35). Papadakis et al teaches a continuous wave of wideband direct-sequence spread-spectrum signals continuously drives one or more transducers (26), transmitting coded ultrasonic signals into the object under test (25). The interrogating signal comprises a carrier, phase-modulated with a pseudo-random code of length sufficient to produce continuous spectral components. One or more receiving transducers (30) of the signals (1,2,3,4), diffracted and deflected within the test object, provide electrical output signals. These are cross-correlated, e.g. software-driven, with a time-delayed replica of the transmitted signal, producing a unique signature signal for display and analysis to determine the test object properties, including flaws. Papadakis et al does not specifically teach compressing information to be transmitted using compressing coding.

In an analogous art, Muzilla et al teaches compressing information to be transmitted using compressing coding (col. 3, lines 5-40). Improves the SNR and/or resolution in color flow ultrasound imaging by using coded excitation with single code. Allows a long transmit pulse to be compressed on receive such that most energy is concentrated in a short interval. Improves spatial resolution sensitivity without

compromising sensitivity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Papadakis et al by specifically adding feature compressing coding in order to enhance system performance of the system purpose of increasing coding efficiency as taught by Muzilla et al.

Regarding claim 10 Papadakis et al teaches at a receiver component (fig. 1,6), receiving (30) the transmitted ultrasound signal and converting the received ultrasonic signal into an analog electrical signal (306); performing an analog to digital conversion on the analog electrical signal (42); despreading the analog to digital converted signal using a CDMA technique (col. 9, lines 35-55).

4. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Papadakis et al (5461921) and further in view of Muzilla et al (5938611) Waters et al (5155741).

Regarding claims 3 and 9 Papadakis et al and Muzilla et al do not specifically teach reducing an effective bit rate of the information to be transmitted to about 1-10 kbit/s when performing the compression coding. The decoder preferably further comprises a converter for converting the analog voice message to digitized voice words, and a memory for storing the digitized voice words. A controller is also preferably provided for controlling the circular shift register in response to the stored digitized voice words.

In an analogous art, Waters et al teaches which comprises reducing an effective bit rate of the information to be transmitted to about 1-10 kbit/s when performing the compression coding. (figs. 2, col. 9, lines 24-54). Therefore, it would have been obvious

to one of ordinary skill in the art at the time the invention was made to modify the device of Papadakis et al and Muzilla et al by specifically adding a 1-10 kbit/s when performing the compression coding for the purpose of increasing the efficiency of the coding system taught by Waters et al.

5. Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Papadakis et al (5461921) and further in view of Muzilla et al (5938611) and Scott (6522642).

Regarding claim 6 Papadakis et al and Muzilla et al do not specifically teach information is spread to +-100khz.

In an analogous art, Scott teaches information is spread to +-100khz (col. 2, lines 30-37). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Papadakis et al and Muzilla et al by specifically adding a information is spread to +-100khz for the purpose of increasing the efficiency of the system taught by Scott.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Papadakis et al (5461921) and further in view of Muzilla et al (5938611) and Nakamura (4591811).

Regarding claim 5 Papadakis et al and Muzilla et al do not specifically teach wherein in performing the step of transmitting the ultrasound signal, the ultrasound signal is transmitted at a frequency between 200 and 400 kHz.

In an analogous art, Nakamura teaches the ultrasound signal is transmitted at a frequency between 200 and 400 kHz. (col. 1, lines 19-28). Therefore, it would have

been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Papadakis et al and Muzilla et al by specifically adding a the ultrasound signal is transmitted at a frequency between 200 and 400 kHz for the purpose of increasing the efficiency of the system taught by Nakamura.

Response to Arguments

7. Applicant's arguments with respect to claims 1,3-7,9,10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAWAR IQBAL whose telephone number is 703-306-3015.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **BANKS-HAROLD, MARSHA**, can be reached at 703-305-4379.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2684 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Khawar Iqbal

Marsha D Banks-Harold

MARSHA D. BANKS-HAROLD
SUPERVISORY PATENT EXAMINER
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